

Bringing marginalized communities into the innovation journey: Digital storytelling as a means to express the better future for San people

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Inclusive innovation builds on overcoming poverty through the creative power and problem-solving capacity of the poor. While the concept is met with increasing interest from policymakers, it is not clear how this collaboration is actually taking place. This paper introduces digital storytelling (DST) as a method to successfully give marginalized communities a voice in collaborative innovation processes. In contrast to previous experiences with DST that mainly look backward, we applied the technique in a pilot study to envisage a better future with the San community in Platfontein. This paper describes how the method was employed to engage community members to share their thoughts and ideas through DST. We further show that for these insights to become meaningful inputs for innovation, they need to be interrogated through thematic analysis by service design specialists. The method revealed a rich source of new ideas and thinking for contemporary service delivery.

Keywords: service design, innovation, open innovation, digital storytelling

Introduction

Innovation is increasingly seen as a way to alleviate poverty in emerging economies. This drive is reflected in emerging concepts like frugal innovation, pro-poor innovation, or inclusive innovation (Lundvall et al. 2009; Kolk, Rivera-Santos, and Rufin 2013; Chataway, Hanlin, and Kaplinsky 2014; Smith, Fressoli, and Thomas 2014; Fursov, Thurner, and Nefedova 2017; Levidow and Papaioannou 2017).¹ While the term innovation is mainly associated with product or process innovation, it also includes improvements associated with services. Innovation activities in the latter are often described as *service design*, a concept that emerged from the increasing service-orientation of Western economies (Han 2010). Interest in innovation around services also arose in recent years in emerging economies as community service delivery has become a cause for social tension. In South Africa, for example, the real or perceived lack of services like policing, schooling or healthcare has caused violent protests to erupt. Besides cases of corruption and blunt failure to deliver services at all, the disputes also arose around what a satisfying service delivery constitutes (Kanyane 2014; Nkomo 2017). Especially for economically disadvantaged communities, the approach to service provision is very different to that for, for example, urban areas with a well-established infrastructure. Traditionally, designers build on ‘an emotional response to another’s emotional state’ and ‘reflect on that by perspective taking’ to gain awareness of the users’ world (Kouprie and Visser 2009, 442). But what if taking the perspective of the end user seems impossible due to the cultural, educational and language differences between the designer and the end user?

The protests around service delivery have shown the urgency to better understand the needs of communities. Hence, the members of the communities must play an integral role in the exploration of context and service solutions explored (Smith and Morris 2008). However,

marginalized communities suffer from a combination of a lack of access to formal education as well as low quality of instruction and social problems. Especially for inclusive service innovation with marginalized communities, it is a prerequisite to get acquainted with the life-reality that these people face. This task, however, is indeed not trivial. Firstly, there is a language barrier. Especially in South Africa with 11 official languages, interpreters would have to come in to support the lines of communication. Furthermore, tribal relations are key to understanding African communities and their decision lines. In certain community settings, written or verbal accounts won’t suffice at all, but instead alternative ways of expressing opinions are required. Consequently, the community members – although eager to engage – could struggle to express their needs in a manner that can be immediately converted into tangible innovation ideas. Another hampering factor is education. While the adult literacy rate in South Africa for persons over 20 years was estimated at 94.4% (Statistics South Africa 2016), marginalized communities have often very little access to educational opportunities that encourage literacy development. Furthermore, adults in South Africa display varying levels of digital literacy. Although IP traffic between 2014 and 2019 is estimated to grow significantly due to technological initiatives (Akamai 2015; CISCO 2015), internet usage is far below values seen in developed countries. Previous successful attempts to encourage civic participation and engagement in public management problems from mainly western countries have mainly built on web-based technologies and have resulted in an increased public awareness and trust building between governments and citizens (Bekkers, Edelenbos, and Steijn 2011; Mergel and Desouza 2013). As inclusive service design is geared towards a community, the focus doesn’t rest on individual wishes and viewpoints, but requires expressing a shared vision among community members, which adds to the task’s complexity.

Although inclusive innovation has received a lot of attention as a way to overcome poverty and, as such, has become a pillar of major policy initiatives (e.g. OECD 2015, 2012), suitable methods for how such inclusion of the poor can be achieved have yet to be developed. We suggest the use of digital storytelling as a method that allows community members to share their thoughts and ideas while overcoming the aforementioned complexities easily. Digital storytelling (DST) – the making of narrated short (2–3 min) video clips – would enable the community to express themselves using their own voices and languages, drawings, and images and items from the immediate environment. In addition, DST offers a chance for researchers to address the visual processing systems favoured by younger participants, which is particularly relevant in a context where literacy may be a challenge (Rieger et al. 2018). Due to these advantages, DST has previously been employed in a community context. It has always been done in a retrospective manner (e.g. through telling one's own history). Previous DST projects showed how the method can be used as a powerful tool to represent culture, traditions, and an opportunity for the community members to build pride in their identity. These projects though only look forward in the sense of the preservation of culture and history for future generations (Cueva et al. 2015). Much in contrast, our study adds value in applying DST for inclusive innovation purposes with a distinctive future aspect.

This study does not aim to present concretized results; rather it presents initial findings and creates attention for this very powerful method. It highlights the suitability of DST to facilitate negotiated decision-making among community participants. The pilot suggests that this type of storytelling method may yield a more user-driven perspective within the discovery and development phases of a service design project. Consequently, our paper adds to critical enquiry into the practice of inclusive innovation (e.g. Levidow and Papaioannou 2017). Furthermore, our study on DST provides connection points to well-established collaborative service design practices in line with classical process models, for example, Double Diamond (Joore and Brezet 2015; Stickdorn and Schwarzenberger 2016).

Digital storytelling in a community context

The digital storytelling movement was born out of a vision of cultural democracy and social change. In 1998, the Centre for Digital Storytelling was established in Berkley. The central method was the structured community workshop, which provided a space for communities and vulnerable individuals to share their journey (Storycenter 2015). Digital stories typically consist of two to three-minute movie clips made with simple equipment and open-access software. Frequently, they involve personal (or internet) images, video clips, text, with the story narrated in the author's voice. They are usually autobiographical, for example: self in relation to community and family; although in recent years, digital stories have increasingly been used for educational purposes, with less or no personal content at all (Lundby 2008; Gachago et al. 2014).

Digital storytelling was quickly taken up as a research tool for anthropological analysis, like Clarke (2009) in Brazil, or Dibley (2012) for Kaupapa Māori research and Whānau Ora of New Zealand or Cueva, Kuhnley, Revels, Schoenberg and Dignan (2015) for Alaskan native people in rural Alaska, or Iseke and Moore (2011) on projects with indigenous Canadian communities. Using DST in the context of an indigenous community presents many opportunities. Apart from the value of being heard, self-representation in a prejudiced context or building a sense of cultural wealth, storytelling can also present a new way of working within rigid community structures. The idea that 'digital storytelling not only bypasses set forms of authority, but also invites new forms' (Lundby 2008, 369), would certainly be appropriate in a community with a rigid hierarchical structure, such as a homogeneous San community.

Existing DST models are reflective, telling, 'what has happened in my life', either as a means of self-expression, or learning from the past (Cueva et al. 2015). The use of DST as tool to *envision* a future has not yet been explored and could provide an extremely powerful tool for communities to 'see and own' an improved future vision of their community, and thus be a tool for social change. The important issue would be to develop a community vision, as opposed to an individual one, for the group to represent, take ownership of, and share with a wider audience. Not only does this have the potential to inspire community members, but also to tell real stories, that can impact the design of environments and facilitate social change. To investigate the potential of such an activity, the relationships between the design process, the storytelling process and community-based research activities were considered. In the move 'toward making research culturally centered, data need to be created and analyzed through processes recognized and valued by the communities in which and with which we are working' (Simonds and Christopher 2013, 2187).

The San community in Kimberley

The San people have roamed the lands of the Kalahari Desert as nomadic hunter-gatherers for thousands of years. However, the arrival of settlers caused turmoil in San communities. Among other issues, limitations placed on areas to move and live, expropriation of water-holes, as well as violent clashes with settlers, meant that the numbers of the San communities were decimated (particularly in the eighteenth century under Dutch rule), and communities retreated further into inhospitable areas of the country (de Prada-Samper 2012). Today, the San communities are mainly scattered across South Africa, Namibia, Angola and Botswana.

In the 1990s the San people were granted more than 60,000 hectares of land to settle in the Kalahari Gemsbok National Park (MacKenzie 1999). In 1997, 4200 individuals of the !Kun and Khwe San communities were given a piece of land outside Kimberley, South Africa (Archer 1996). In 2003 the communities moved onto the land, into low-income housing, calling the area Platfontein. Assessments of social and economic development stressed the impoverished state in which numerous

southern African San communities live (Soskolne, 2007; Chennells 2009). The community in Platfontein is still plagued by a number of social and economic difficulties including alcoholism, unemployment and violence (Becker 2003), and activists describe the San as ‘one of the most vulnerable and marginalized groups in South Africa’ (Robins 2001, 848). Issues such as foetal alcohol syndrome, chronic unemployment and widespread illiteracy continue to feature in the day to day existence of San communities, including Platfontein, and many San communities feel ignored and abandoned by welfare organizations and policymakers (de Prada-Samper 2012).

The San communities, as hunter-gatherers/ foragers, were egalitarian (Wiessner 1996). And while the hunter-gatherer lifestyle has been severely curtailed by land dispossession and oppression, the egalitarian principles still remain to this day. While there are San elders and leaders, who make final decisions, the members of a San community frequently think and make decisions for the whole community. While some of the San languages are extinct, some aspects of culture are fiercely defended. For example, storytelling is a key part of the San culture. Although /Xam as a language is no longer in use, the word kukummi still describes stories, myths, gossip and San legends. The San build on an oral tradition, and some ancient stories – describing legends and folklore of the nomadic hunter-gatherer societies – are passed down through the generations (Davie 2105). Wiessner’s article, “Embers of Society” (2014), describes the different types of discussion that happen at the San fireside, dividing daytime stories – more economic and practical in nature – and nighttime tales. These latter stories focus on imagination, legend and history. And while electricity has expanded the window of ‘productive time’ in a day, the San maintain a culture of storytelling.

Methodology

The investigation of DST as a method to map the future was the final activity in a four-day workshop, aimed at exploring the community’s service needs (Table 1). Prior to engaging with the DST method, activities were hosted to gain a more nuanced understanding of the context. The first day was spent with stakeholders and community representatives who would act as co-facilitators during the session with the youth. Part of this engagement was finalizing the methods with the input from the representatives. Research questions were discussed to ensure that highly sensitive and controversial topics could be identified and avoided.

During the first day of working with community members, researchers focused on listening to their perceptions, concerns and world views. The discussion topics centred on the wellbeing of individuals and the community. Community members directed the conversation and as such engaged in a way which was comfortable for them. The presence of embedded co-facilitators supported this. During discussions researchers introduced their goals and motivations for the study.

The DST session ran over the final two days of the workshop. The first day of the DST session focused on creative exploration of various services needed within

the community. In small groups, participants reflected on community needs and reviewed current service delivery and availability. The discussions then progressed to physically visualizing the new community. Participants used paper, markers, cardboard and a variety of materials available in their near environment. These were collected, modified and added to a large (table size) plan of the new community.

Throughout this process, the small groups evaluated the various individual opinions within the group, in order to arrive at a collective understanding of the community services most required. During the activity, participants were encouraged to engage in the language they felt most comfortable using – an aspect made possible through the participation of community-based facilitators. Towards the end of the first day, the groups developed a script for their digital story. They focused on taking the viewer on a tour of the new community, highlighting the aspects they felt were most important, and the main services that needed to be available. The final activity was to record the main footage for the storytelling of the new community tour. Participants were given an array of options, including whether they wanted to appear in the video, the language used, and in which space they wanted to shoot the video. An individual from within the group recorded the footage (Figure 1).

Day two began with a showing of the various stories to the larger group. Afterwards each group could direct the final elements added to their videos (including titles, soundtrack and still images used in the video). Following the final showing of the stories to the larger group, participants were asked, within their small groups, to comment on the activity and the final digital story.

The DST tool was used in a manner that required the group members to physically make or draw images to represent what they wanted in their future community. The use of images and actual objects (such as sticks, leaves, seedpods from the immediate surroundings, etc.) was a means of democratizing the process, in that the usual power structure related to literacy, language and writing was dissolved, as group members drew or made their vision collectively. The making of the vision for the future of the community became a tool for communal negotiation, as a hierarchy of needs developed – for inclusion or exclusion in the film – when the group evaluated the importance of each suggestion. There was also a transfer of DST skills during the process. Group members planned what to share, made the visual aids and decided how to best share their future view of the community. Members were also offered the opportunity to film their own story, thus working with new tools. Three of the four groups chose to film their own story. The DST project gave the community a voice, an authentic means of self-expression, and an opportunity to explore different styles of video (Dibley 2012). The choice to appear or be invisible (voice over) was yet again left to the discretion of each group, as was the choice of language for the film. Of the four films made, one was narrated in English and the remaining three were presented in Afrikaans.

Table 1: Review of workshop activities, role-players and significance.

Day	Role-player	Activity	Significance
DAY 1: Meet with local stakeholders	Selected community members and stakeholders	• Introduced to the purpose of the workshop and researchers • Co-created the activities • Community facilitators played an integral role in translation	• Researchers gained a better understanding of the community • As not all of the researchers were fluent in the main language used, namely Afrikaans, the community facilitators played an integral role in translation
DAY 2: Explore context	Participants (with co-facilitators from the community)	• Wellbeing wheel • Future me	• Understanding an individual's needs in relation to eight categories • Preparing to look into future possibilities for individuals
DAY 3: DST method (first day of method)	Co-facilitators (community members)	• Acted as facilitators within the smaller groups of participants • Community facilitators played an integral role in translation	• Community facilitators played an integral role in translation • They also clarified points explained in Afrikaans, by repeating them in the relevant San language
	Participants	• Reflected on community needs • Reviewed current service delivery and availability • Imagined what their community would look like if their concerns and community needs were met • Visualized that first on a community map • Planned the script for the video • Visualized the new services through a video tour of the new community • Acquired new skills with video cameras	• Worked collaboratively to discuss the nature and effectiveness of the services in their community • Were able to communicate freely with each other • Used supplied materials as well as local resources to draw and create their community maps • Able to communicate freely, in a language that they chose (mostly Afrikaans and the indigenous San language were used) for their video
DAY 4: DST method (final day)	Participants	• Pre-screening of the first version of the digital story • Direct the final elements added to their videos (including titles, soundtrack and still images used in the video)	• Participants were able to share in the various community visions • Participants felt in control of the outcome • The DST project was used as a tool to create an authentic, shared, community vision for the future

Based on the stories we received from the community members, the workshop materials produced by participants and discussion notes, the research team identified the patterns and themes that could be converted into real service needs and met with innovation activities. In

order to achieve this, it was paramount to see the total meaning, resolve apparent contradictions and make sense of the phenomenon described, not only for individual subjects, but also for the community. The stories and materials were analyzed by a group of researchers to

Table 2: Steps of the thematic analysis.

Braun & Clark's analysis:	Realization in the project:
1. Familiarizing yourself with your data	The team analyzing the findings were an integral part of the workshop in which the digital stories were produced, and findings captured.
2. Generating initial codes	The analysis was completed to generate initial codes and identify emerging service themes. Two researchers completed the analysis.
3. Searching for themes	The initial themes and patterns were communicated to the bigger research group to review against original data. The service concepts emerging were considered from a community perspective.
4. Reviewing themes	Once feedback was gathered from the larger research team, the emerging service concepts were reviewed once again and finalized (for this specific context and community). Findings were compiled for publication.
5. Defining and naming themes	
6. Producing the report	

Source: Braun and Clarke (2006, 100)



Figure 1: Community members working on the physical visualization of the future community.

avoid the impact of individual bias and assumptions. The process of identifying emerging service themes and patterns followed the prescribed thematic analysis (Table 2).

Findings

Findings from the study can be viewed through two lenses. The first refers to the content of what can be noted in the digital stories produced by community members. When analyzed thematically, these present a number of service opportunities. The results do not however present a detailed analysis from the participants' perspective, but rather a broader community view. This aspect may be magnified if the stories produced are analyzed by a third party who did not engage in the process. In this case, the stories were reviewed by researchers who had actively engaged in the process and spent time with community members exploring the context. From this perspective, a number of findings were noted within the stories generated. Among the first expressions noted was that all the houses that were drawn were similar. Not one stood out by being bigger or smaller, or more beautiful. Instead, the housing in all four future villages were alike, providing shelter for an egalitarian community. In one drawing, it was noted that the participants equipped the houses with little add-ons. When asked about these, the respondents mentioned the importance of having flushable toilets that don't interfere too much with life quality as it is currently

the case. The vision is to have water and sanitation services, that ensure that the community has access to improved hygiene.

Another point that was mentioned by all participants was to have access to an early childhood development centre. Such centres help to prepare pupils for their schooling career. Many San children struggle to integrate into traditional school settings, as they are often very quiet students, much in contrast to their peers. Early childhood development centres are seen by many community members as a necessity to ensure that their children benefit from schooling. Also, a community college is envisaged. Here, mainly languages should be taught. On the one hand, a better command of English is required for the San to get better paid jobs in the cities. On the other hand, their own language should be properly taught. The San community is acutely aware that their traditions and languages face becoming extinct. The situation is amplified through the oral traditions that characterizes San culture. As the San integrate into communities with greater numbers, the use of their native tongue becomes problematic. This awareness influences their perception the importance of educational courses and content.

In a strategic place in the new village, a big clinic was placed in all of the four cases. Currently, the community has access to professional nurses. To access a fully-equipped hospital, community members require a

taxi-service which is expensive and hard to get. Next to the hospital, a big sport ground was placed. There, the youth could spend their time playing netball and football and have access to a big swimming pool. The issue of the youth appeared throughout the exercise. All inputs requested a youth centre, and when asked why, the answer was to keep their children off the streets – and away from drinking alcohol. Also, all participating groups stressed the need for a cultural centre. This centre was depicted like a classical African village, consisting of round huts that open towards a big fireplace. Especially for a community like the San, carrying on with their tradition is part of their self-identity. However, and this is interesting, these centres are all placed at the corner of the community, not taking much of the central ground. Their cultural heritage is acknowledged and appreciated by the community members, but a modern lifestyle is preferred. Interestingly, in these places, the elderly – a very important role in African societies – could teach the youth and advise them in traditional stories and traditional ways of hunting.

One specific community that struggles greatly with crime wants a police station within easy reach. Currently, the participants say, if they call for the police, they don't come. Also, next to the police station, there is a taxi rank. The idea is that taxis would wait there for customers. One community requested an ATM for the village. The problem is that the elderly who have funds are unable to go to the next larger settlement to draw money from the ATM there. Handing the cards and pins over to the younger community members is not a preferred option, as many fear their funds might be misused. This addition speaks to a larger social challenge, where elderly community members struggle to obtain funds, as this requires travelling to Kimberley (21 km away). Another community requested a cultural museum, so that outsiders could come and learn about the rich San culture. In addition, this should include a market place where people could sell their crafts to tourists. The group also envisaged establishing a workshop for producing artwork and printing of fabrics.

Interpretation by service-designers

Community-led innovation in marginalized communities relies on a shared communication method and balanced power dynamics. Establishing project goals and managing expectations from a community perspective is crucial, especially when working with an under-resourced community, or when dealing with sensitive subject matters. Communities that are marginalized may view a critical response during discussions with designers as risky – potentially jeopardizing the support the project may offer, should designers not agree with their statements. In this way, participation in the service design process can be marred by the community's fear of disagreement or criticism.

The interaction space for service design projects must be suitable for addressing the engagement. Such barriers include conflicting goals, competence in participation, attitudes of community members towards the project and process in general, the organization of activities as well

as the selection of methods, tools and techniques (Gould and Lewis 1985; Gulliksen, Lantz, and Boivie 1999; Wallach and Scholz 2012). To achieve a truly participatory design space, in which both designers and community members feel confident and comfortable enough to contribute, the power dynamic must be considered and negated. This collaborative space should offer users the opportunity to develop new applications that add value and speak to their real-life situation. When community participants immerse themselves in the process and actively collaborate, authentic insights can be gathered. These insights offer actionable service design opportunities, but also reflect opportunities for social innovation, policy development or deeper understanding of social and political nuances and manifestations of these within a community.

The use of DST in this project gave the community a voice and encouraged them to take a leading role in the production and capturing of the process. This aspect shifted control to the participants, allowing for a more expressive telling of the community's story, and a more authentic method of self-expression (Dibley 2012). The stories required participants to reflect on their current context and to redesign their community. Through this process, service opportunities emerged. These included tangible wellbeing services, such as localized social workers and medical suites, and services that foster self-expression and cultural preservation, such as a theatre, a cultural centre and a museum. Within each of the identified service fields, a plethora of unique service cases emerged. Within youth-based services, for example, the resulting community stories indicated a need for:

- Educational support services
- Indigenous knowledge preservation
- Generational knowledge sharing
- Health and wellbeing information services
- Physical activities (sport)
- Cultural activities (theatre, art)
- Alcoholism and substance abuse services
- Home-based healthcare

How could such findings be converted into service design solutions? Some of the aforementioned service demands could be tackled by technologies. For example, using a mobile text-message based information service could give a quick answer to simple health-related questions. It is possible to give a diagnosis by using a webcam. This certainly does not replace the need to see a doctor in serious cases, but it would help to a community member decide whether it is indeed necessary to travel to a hospital.

Transportation is another area of concern that is closely linked to various service needs. One solution could be the trial establishment of a trail track for remotely controlled small buses. These could offer a regular transport service between the community and the entry point of a larger town, or they could be dispatched on demand. Such a trial run could spark further innovation processes.

Another area of great concern evolved around education, which is generally a weak point in South Africa's

service provision. The main concern was in early childhood development. Would it be possible to train trusted community members in becoming educationalists that could work with the children in the community? As for the teaching of languages, maybe a mobile teaching service could be established. A group of teachers could visit such communities at regular intervals and do intensive language training for all age groups. A specifically interesting area for service innovation is the San's desire to maintain their cultural heritage. In a traditional village, elders should tell stories to younger members, and advise them in traditional hunting techniques. This offering though could very well be expanded to tourist groups who are looking for such an experience. Also, the hunting experience of the elderly could be very appealing to survival enthusiasts or city dwellers in search of this specific type of experience. Furthermore, videos could be made of the elders who tell about their lives and demonstrate important aspects of their ancestors.

Conclusion

This paper reported on a pilot study on the use of digital storytelling to include marginalized communities in the innovation process. Digital storytelling has been used in work with indigenous communities all over the world and has proved a powerful tool to capture individual life journeys and experiences. We applied the technique in a forward-looking manner, inviting participating communities to envisage a better future for themselves in an imagined village. The community chosen was the San community in Platfontein. Although they had been granted land, their existence depended on adapting to new customs and ways of life, which the community still struggled with. Some of the service needs that the participants mentioned feed into the larger South African context. High levels of unemployment are a general difficulty in rural South Africa, as is access to educational opportunities. The exclusion of many young people from education, skills training and employment denies them the opportunity to develop and improve their quality of life (Magongo et al. 2011). Other service needs, like educational offerings that take care of the participating communities' specific requirements or preserving their ancient traditions and sharing them with youth and interested outsiders, are unique to the communities we studied. We further showed that to become meaningful inputs for innovation, these views and inputs had to be translated by service design specialists. When this was done they revealed a rich source of new ideas and thinking to contemporary service delivery. We believe that digital storytelling is a very powerful tool that enables us to hear the voices of those who otherwise would not be able to contribute their views. To make technologies truly democratic and accessible to all, such tools are key. We hope to spark more research in this regard to learn more about how to use digital storytelling in various settings.

Disclosure statement

No potential conflict of interest was reported by the authors.

Note

1. Von Hippel's works on democratized innovation (2005) or his recent book on free innovation (2017) provide the framework for these developments.

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